

In The Claims

Please amend the claims as follows:

1. (Currently amended) An integrated paper having active particles immobilized therein, said integrated paper comprising of:

a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein said fibrillated fibers have an average fiber diameter of less than about 1000 nm; and active agents selected from the group comprising ~~consisting of~~ metals, metal salts, metal oxides, alumina, carbon, activated carbon, silicates, ceramics, zeolites, diatomaceous earth, activated bauxite, fuller's earth, calcium sulfate, titanium dioxide, magnesia, magnesium hydroxide, magnesium oxide, manganese oxides, iron oxides, perlite, talc, clay, bone char, calcium hydroxide, calcium salts, or combinations thereof,

wherein said integrated paper has a mean pore size of less than or equal to about 2-~~μ~~ microns.

2. (Original) An integrated paper of claim 1 wherein said fibrillated fibers comprise Lyocell.

3. (Currently amended) An integrated paper of claim 2 wherein the ~~Lyocell~~-lyocell has an average fiber diameter of less than about 400 nm.

4. (Currently amended) An integrated paper of claim 1 wherein said active agents have an average particle size of less than or equal to about 1 ~~μ~~-micron to about 5000-~~μ~~ microns.

5. (Original) An integrated paper of claim 1 wherein the average diameter of said fibrillated fibers is less than an average particle size of said active agents.

6. (Original) An integrated paper of claim 1 further including binder fibers or particles.

7. (Original) An integrated paper of claim 1 wherein said fibrillated fibers and said active agents have different settling velocities such that said integrated paper has an asymmetric structure when formed by wet-laid processes.

8. (Currently amended) An integrated paper of claim 1 further including a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers and/or said active agent.

9. (Currently amended) An integrated paper ~~er~~-comprising of:
a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein said fibrillated fibers have an average fiber diameter of less than about 400 nm; and silver oxide particles admixed with said fibrillated fibers.

10. (Original) An integrated paper of claim 9 wherein the fibrillated fibers comprise a liquid crystal polymer.

11. (Currently amended) An integrated paper comprising of:
a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein said fibers have an average fiber diameter of less than about 400 nm; and one or more acid neutralizing agents admixed with said fibrillated fibers;
wherein said integrated paper can withstand a hot and corrosive environment of a lube oil filter, and wherein said one or more acid neutralizing agents comprises magnesium oxide, magnesium hydroxide, calcium sulfonate, magnesium sulfonate, calcium phenate, magnesium phenate, or combinations thereof.

12. (Original) An integrated paper of claim 11 further including binder fibers or particles.

13. (Currently amended) An integrated paper of claim 11 ~~wherein said one or more acid neutralizing agents comprises magnesium oxide, magnesium hydroxide, calcium sulfonate, magnesium sulfonate, calcium phenate, magnesium phenate, or combinations thereof~~ further comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers and/or said agents.

14. (Currently amended) An integrated paper comprising of:
a plurality of lyocell fibers fibrillated at a temperature greater than about 30°C,
wherein said fibrillated lyocell fibers have an average fiber diameter of less than or equal to about 400 nm; and
activated carbon particles admixed with said fibrillated lyocell fibers, wherein said integrated paper has a mean flow path of less than about 2 ~~μ~~ microns.

15. (Currently amended) An integrated paper of claim 14 further including a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers and/or said agent.

16. (Original) An integrated paper of claim 14 further including a heavy metal reducing agent.

17. (Currently amended) An integrated paper of claim 16 wherein the heavy metal ~~reduction~~ reducing agent comprises particles of zeolite, silicate, or combinations thereof.

18. (Original) An integrated paper of claim 14 further including an arsenic reducing agent.

19. (Original) An integrated paper of claim 18 wherein the arsenic reducing agent comprises particles of iron, oxides of manganese or iron, or combinations thereof.

20. (Currently amended) An integrated paper ~~comprising~~comprising:
a plurality of fibers having an average fiber diameter of less than about 1000 nm; and
a lead reducing agent admixed with said plurality of fibers;
wherein said integrated paper has a mean flow path of less than about 2 ~~μ~~microns.

21. (Currently amended) An integrated paper of claim 20 further including a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers and/or said agent.

22. (Original) An integrated paper of claim 20 further including binder fibers or particles.

23. (Currently amended) An integrated paper of claim 22 further including a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers and/or said agent.

24. (Currently amended) An integrated paper of claim 20 further including a carbon block, wherein said integrated paper is wrapped around the carbon block, including a microbiological interception enhancing agent associated with said paper and/or said block comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers, said agent, and/or said carbon block.

25-40. (Cancelled)

41. (New) An integrated paper having active particles immobilized therein, said integrated paper comprising of:

a plurality of fibers fibrillated at a temperature greater than about 30°C, wherein said fibrillated fibers have an average fiber diameter of less than about 1000 nm; and active agents selected from the group consisting of metals, metal salts, metal oxides, alumina, silicates, ceramics, zeolites, carbon, activated carbon, diatomaceous earth, activated bauxite, fuller's earth, calcium sulfate, titanium dioxide, magnesia, magnesium hydroxide, magnesium oxide, manganese oxides, iron oxides, perlite, talc, clay, bone char, calcium hydroxide, calcium salts, or combinations thereof;

wherein said integrated paper has a mean pore size of less than or equal to about 2 microns and includes a microbiological interception enhancing agent comprising a cationic material having a counter ion associated therewith when exposed to an aqueous biologically active metal salt solution, forming a colloidal metal precipitate that precipitates onto at least a portion of the surface of at least some nanofibers and/or said active agents.

42. (New) The integrated paper of claim 41 where in said colloidal metal precipitate includes a silver-amine-halide complex.

43. (New) The integrated paper of claim 41 where in said fibrillated fibers have an average diameter of less than or equal to 250 nm and a length of 1mm to about 8 mm.